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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/616,885	07/14/2000	Jin-Meng Ho	03493.00085	6579
28317	7590	06/15/2005	EXAMINER	
BANNER & WITCOFF LTD., ATTORNEYS FOR AT & T CORP 1001 G STREET, N.W. ELEVENTH STREET WASHINGTON, DC 20001-4597			SHAH, CHIRAG G	
			ART UNIT	PAPER NUMBER
			2664	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/616,885

Applicant(s)

HO, JIN-MENG

Examiner

Chirag G. Shah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Romans et al (U.S. Patent No. 6,587,453), hereinafter Romans in view of Chuah (U.S. Patent No. 6,567,416).

Referring to claims 1, 8, 9, 16, 21 and 22, Romans discloses in column 1, lines 10 to 65 of providing QoS driven access within a BSS in a wireless network, the method/system comprising the steps of:

a PC station sending a contention control, the CC frame being sent by the PC station during a CFP of a superframe (as disclosed in column 3, lines 15-45), the frame contains number of available centralized contention opportunities for receiving a reservation request in a centralized contention interval following the CC frame (as disclosed in column 7, lines 5-31, CP allocates slots for a connection and sets the connection request flag in the CP beacon for the relevant node), the superframe including a contention-free period (CFP) and a contention period (CP) [as disclosed in column 2, lines 7-12, in column 5, sections packet format, Frame control, Control frame and Slot Assignment and in column 7, lines 2-58, a Control Point sends a Beacon control frame, which includes slot assignment part, retransmission part, connection management part

and 4 bit position of additional optional information. To establish a connection from a CP to the terminal, the CP allocates slots for a connection and sets the connection request flag in the CP Beacon for the relevant terminal];

receiving the CC frame at a non-PC station in the BSS [as disclosed in column 7, lines 2-58, node receives the CP Beacon since the node responds using a CPS (control point service) request message transmitted in the uplink slot allocated by the CP, each time it receives the connection request];

sending an RR in a selected one of the available CCOs in the CCI in response to the received CC frame, the RR being sent from the non-PC station when the non-PC station has a burst of data frames to send, and the RR indicating an amount of bandwidth requested by the non-PC station sending the RR for transmitting the burst [as disclosed in column 7, lines 2-58, the node responds using a CPS (control point service) request message such as a request of amount bandwidth transmitted in the uplink slot allocated by the CP, each time it receives the connection request];

receiving the RR frame at the PC-station in one of the CCOs of the CCI [as disclosed in column 6, lines 9-59, column 7, lines 2-58 and in column 8, lines 1-28, if the CP does not receive a CPS Request message from the node after a specified time interval, the connection is deallocated, the connection established flag notifies a terminal that the CP has received a connection request to the node and has allocated a connection] ;

sending a multipoll frame from the PC station containing information relating to at least two transmission opportunities assigned to at least one non-PC station in the BSS for data transmission [as disclosed in column 5, lines 35 to column 6, lines 45 and

column 8, lines 7 to 28, Control Point notifies the node of its the slot assignment information using the slot assignment portion of the Beacon] ;

receiving the multipoll frame at at least one non-PC station in the BSS [as disclosed in column 5, lines 35 to column 6, lines 45 and column 8, lines 7 to 28, the node receives the slot assignment information in the form a beacon]; and

sending at least one data frame in respective TO from each non-PC station that is identified in the multipoll frame in response to the received multipoll frame [as disclosed in column 4, lines 30-33 and column 8, lines 1-28, the terminal node that has been allocated a connection and a slot assignment by a CP can use the uplink TDMA slot for transmitting data messages].

Romans discloses in table 1, where the Control Point beacon control frame contains 3-7 bit position of addition optional information, but fails to disclose that the CC frame further containing information relating to the identification of stations from which a RR was successfully received by the PC station in a preceding CCI. Chuah teaches of a method for access control in a wireless network having a base station and a plurality of remote hosts. Chuah discloses in figures 4 and 6 and respective portions of the specification of that the frame body contains a beacon message, acknowledgement for previous uplink reservation minislots, broadcast message and acknowledgments for previous uplink data. Therefore, it would have been obvious to one of ordinary skills in the art to include inserting the acknowledgments for previous uplink data as taught by Chuah into the frame as taught by Romans having available optional information bit position in order to ensure quality of service and efficient use of limited bandwidth available.

Referring to claims 7 and 15, Romans discloses in column 1, lines 10 to 65 of providing QoS driven access within a BSS in a wireless network and a method/system comprising:

a point (PC) station within the BSS sending a contention control (CC) frame, the CC frame (as disclosed in column 3, lines 15-45) containing information relating to a number of available centralized contention opportunities for receiving a reservation request in a centralized contention interval following the CC frame (as disclosed in column 7, lines 5-31, CP allocates slots for a connection and sets the connection request flag in the CP beacon for the relevant node), the CC frame being sent by the PC station during a contention-free period of a superframe, the superframe including a contention-free period and a contention period [as disclosed in column 2, lines 7-12, in column 5, sections packet format, Frame control, Control frame and Slot Assignment and in column 7, lines 2-58, a Control Point sends a Beacon control frame, which includes slot assignment part, retransmission part, connection management part and 4 bit position of additional optional information. To establish a connection from a CP to the terminal, the CP allocates slots for a connection and sets the connection request flag in the CP Beacon for the relevant terminal]; and

at least one non-PC station receiving the CC frame at a non-PC station in the BSS [as disclosed in column 7, lines 2-58, node receives the CP Beacon since the node responds using a CPS (control point service) request message transmitted in the uplink slot allocated by the CP, each time it receives the connection request];, a non-PC station sending an RR in a selected one of the available CCO in the CCI in response to the

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received CC frame, each RR being sent when the corresponding non-PC station has a burst of data frames to send, each RR indicating an amount of bandwidth requested by the non-PC station sending the RR for transmitting the burst [as disclosed in column 7, lines 2-58, the node responds using a CPS (control point service) request message such as a request of amount bandwidth transmitted in the uplink slot allocated by the CP, each time it receives the connection request];

Romans discloses in table 1, where the Control Point beacon control frame contains 3-7 bit position of addition optional information, but fails to disclose that the CC frame further containing information relating to the identification of stations from which a RR was successfully received by the PC station in a preceding CCI. Chuah teaches of a method for access control in a wireless network having a base station and a plurality of remote hosts. Chuah discloses in figures 4 and 6 and respective portions of the specification of that the frame body contains a beacon message, acknowledgement for previous uplink reservation minislots, broadcast message and acknowledgments for previous uplink data. Therefore, it would have been obvious to one of ordinary skills in the art to include inserting the acknowledgments for previous uplink data as taught by Chuah into the frame as taught by Romans having available optional information bit position in order to ensure quality of service and efficient use of limited bandwidth available.

Referring to claims 2, 10, 18 and 23, Romans discloses in column 5, lines 35 to column 6, lines 45 and column 8, lines 7 to 28, Control Point notifies the node of its the slot assignment information using the slot assignment portion of the Beacon. Romans further discloses in

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column 2, lines 21-45 wherein the at least one data frame sent by a non-PC station in response to a TO originates from one of a continuous/periodic flow type traffic source [voice/data traffic], a discontinuous/bursty flow type of traffic source [data/voice node], and a best-effort/asynchronous traffic source [voice/data traffic]. Romans fails to disclose the method further comprising a step of periodically allocating at least one TO for each non-PC station having a continuous/periodic flow type of traffic source based on at least one QoS parameter value maintained within the PC station. Chuah teaches of base station adjusting and allocating bandwidth based on priorities and QoS requirement. Chuah specifically discloses in column 10, lines 46-57 that the base station schedules transmission of its uplink and downlink traffic and allocates bandwidth dynamically, based on traffic characteristics and QoS requirements as well as the current bandwidth needs of all supported hosts. Therefore, it would have been obvious to one of ordinary skills in the art to modify the teachings of Romans to include allocated bandwidth based on traffic characteristics and QoS requirements as taught by Chuah in order to maximize the utilization of the limited wireless spectrum while still supporting the quality of service requirements of all traffic.

Referring to claims 3, 11, 18, and 24, Romans discloses in column 7, lines 22-29 that after the CP sends out a beacon, the node responds using a CPS request message. Romans discloses of allocating at least one TO for each non-PC station having a best-effort/asynchronous traffic (voice service) source at the non-PC station in column 2, lines 21-29, column 5, lines 35 to column 6, lines 45 and column 8, lines 7 to 28, the Control Point notifies the node of its the slot assignment information using the slot assignment portion of the Beacon. Romans further discloses in column 2, lines 21-45 wherein the at least one data frame sent by a non-PC station in



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response to a TO originates from one of a continuous/periodic flow type traffic source [voice/data traffic]. Romans fails to disclose the step of allocating at least one TO for each non-PC station having discontinuous/burst traffic source based on at least one QoS parameter value maintained within the PC station upon an indication by the non-PC station, via a RR, of a new bursty arrival originating from a discontinuous/bursty flow type of traffic source at the non-PC station. Chuah teaches of base station adjusting and allocating bandwidth based on priorities and QoS requirement. Chuah specifically discloses in column 10, lines 46-57 that the base station schedules transmission of its uplink and downlink traffic and allocates bandwidth dynamically, based on traffic characteristics and QoS requirements as well as the current bandwidth needs of all supported hosts. Therefore, it would have been obvious to one of ordinary skills in the art to modify the teachings of Romans to include allocated bandwidth based on traffic characteristics and QoS requirements as taught by Chuah in order to maximize the utilization of the limited bandwidth while still supporting the quality of service requirements of all traffic.

Referring to claims 4, 12, and 17, wherein the information contained in the multipoll frame further includes information relating to a length of each TO [as disclosed in column 5, lines 5 to column 6, lines 5 and column 3, lines 15-22, lengths are in octets and the slot assignment contains transmission opportunity length in octets of the slot assignment information] as claims.

Referring to claims 5, 13, and 19, further comprising the step of scheduling transmission of down-stream traffic from the PC station and to at least one selected non-PC station in the BSS [as disclosed in column 6, lines 9-62 and column 8, lines 10-17, after a CP beacon from the PC station and after the CP has received a connection request from the non-PC station node, the

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control point notifies/schedules new slots using the slot assignment portion of the Beacon (based on down-streaming traffic from control point to terminal node)] as claims.

Referring to claims 6, 14, 20 and 25, Romans discloses in column 4, lines 44-48 that the wireless network is an IEEE 802.11 WLAN as claims.

### *Response to Arguments*

3. Applicant's arguments filed 2/7/05 have been fully considered but they are not persuasive.

Applicant argues that Romans' CFPs containing slots are used to transmit data and not control frames such as Applicant's reservation requests (RRs). Secondly, Applicant argues that Romans' does not disclose or suggest the claim limitation relating to the request for an amount of bandwidth needed to transmit a burst of data frames. Thirdly, Applicant further argues that neither Romans nor Chuah disclose or suggest that the CC frame contains information relating to the identification of stations from which a RR was successfully received by the PC station in a preceding CCI. Fourthly, Applicant additionally argues that a single beacon frame in the Romans et al patent cannot reasonably anticipate the multipoll frame containing information relating to transmission opportunities in which data frames may be sent.

Examiner respectfully disagrees and redirects Applicant to Romans' patent in order to provide support. In respond to the first question, Romans' CFPs containing slots are used to transmit control frames since CPS request message is in a form of requesting service from the control point. In response to the second question, Romans' discloses in

col. 7, lines 22-36 that a (terminal) node responds using a CPS (control point service) request message transmitted in an uplink slot. The control point service request message that is transmitted upstream to the control point for allocating resources is inherently the amount of bandwidth requested based on the type of service requested by the node. In response to the third question, Romans' fails to disclose that the CC frame further contains information relating to the identification of stations from which a RR was successfully received by the PC station in a preceding CCI. However, Chuah discloses in fig. 4 and 6 and the respecting sections (col. 12, lines 50-67), wherein during a contention free period, frames are sent out containing acknowledgement information relating to identity of remote nodes from which contention reservation slot are acknowledged. In response to the fourth question, col. 8, lines 7-28 in addition to col. 5, lines 35 to col. 6, lines 45 discloses that a beacon frame is received by the node having the slot assignment information. The control point notifies the node of its new slots (at least two transmission opportunities) using the slot assignment portion of the beacon (see col. 8, lines 10-18). Therefore in light of the support provided, claims 1-25 respectfully remain rejected.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**Any response to this final action should be mailed to:**

**Box AF**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**Or faxed to:**

(703)305-9051, (for formal communications; please mark "EXPEDITED  
PROCEDURE")

**Or:**

(703)305-5403 (for informal or draft communications, please label "PROPOSED"  
or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal  
Drive, Arlington, VA., Sixth Floor (Receptionist).

cgs

June 1, 2005

  
**Ajit Patel**  
**Primary Examiner**